

IN THE CLAIMS:

Please cancel claims 1-51.

Please add the following new claims 52-78, which constitute non-elected claims 74-100 of parent application Serial No. 09/349,833:

52. A luminescent semiconductor nanocrystal probe, comprising:

a) a water-soluble semiconductor nanocrystal comprising:

i) a core comprising a first semiconductor material; and

ii) a core-overcoating shell comprising a second semiconductor material;

b) a linking agent comprising a first portion and a second portion, wherein said first portion is linked to said water-soluble semiconductor nanocrystal; and

c) an affinity molecule linked to said second portion of said linking agent.

53. The probe of claim 52, wherein said first semiconductor material is a II-VI semiconductor or a III-V semiconductor.

54. The probe of claim 53, wherein said first semiconductor material is a II-VI semiconductor.

55. The probe of claim 53, wherein said first semiconductor material is a III-V semiconductor.

<sup>5</sup>  
56. The probe of claim <sup>3</sup>54, wherein said first semiconductor material is MgS, MgSe, MgTe, CaS, CaSe, CaTe, SrS, SrSe, SrTe, BaS, BaSe, BaTe, ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, HgS, HgSe, or HgTe.

<sup>6</sup>  
57. The probe of claim <sup>4</sup>55, wherein said first semiconductor material is GaAs, InGaAs, InP, or InAs.

<sup>7</sup>  
58. The probe of claim <sup>1</sup>52, wherein said second semiconductor material is a II-VI semiconductor or a III-V semiconductor.

<sup>8</sup>  
59. The probe of claim <sup>7</sup>58, wherein said second semiconductor material is a II-VI semiconductor.

<sup>9</sup>  
60. The probe of claim <sup>7</sup>58, wherein said second semiconductor material is a III-V semiconductor.

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<sup>10</sup> 61. The probe of claim <sup>8</sup>59, wherein said second semiconductor material is MgS, MgSe, MgTe, CaS, CaSe, CaTe, SrS, SrSe, SrTe, BaS, BaSe, BaTe, ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, HgS, HgSe, or HgTe.

<sup>11</sup> 62. The probe of claim <sup>9</sup>60, wherein said second semiconductor material is GaAs, InGaAs, InP, or InAs.

<sup>12</sup> 63. The probe of claim <sup>1</sup>52, wherein said first semiconductor material is CdSe and said second semiconductor material is ZnS.

<sup>13</sup> 64. The probe of claim <sup>1</sup>52, wherein said linking agent comprises a thiol moiety.

<sup>14</sup> 65. The probe of claim <sup>13</sup>64, wherein said linking agent further comprises an alkyl group.

<sup>15</sup> 66. The probe of claim <sup>14</sup>65, wherein said alkyl group is a propyl group.

<sup>16</sup> 67. The probe of claim <sup>1</sup>52, wherein said linking agent is N-(3-aminopropyl)-3-mercapto-benzamide, 3-aminopropyl-trimethoxysilane, 3-mercaptopropyl-trimethoxysilane, 3-maleimidopropyl-trimethoxysilane, and 3-hydrazidopropyl-trimethoxysilane.

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<sup>17</sup>  
68. The probe of claim 52<sup>1</sup>, wherein said nanocrystal compound further comprises a glass coating on said shell.

<sup>18</sup> <sup>17</sup>  
69. The probe of claim 68, wherein said glass coating comprises a polymeric oxide.

<sup>19</sup> <sup>18</sup>  
70. The probe of claim 69, wherein said polymeric oxide is an oxide of silicon, an oxide of boron, an oxide of phosphorus, or a mixture thereof.

<sup>20</sup> <sup>18</sup>  
71. The probe of claim 69, wherein said glass coating further comprises metal silicate, a metal borate or a metal phosphate.

<sup>21</sup> <sup>17</sup>  
72. The probe of claim 68, wherein said linking agent is selected from the group consisting of N-(3-aminopropyl)-3-mercapto-benzamide, 3-aminopropyl-trimethoxysilane, 3-mercaptopropyl-trimethoxysilane, 3-maleimidopropyl-trimethoxysilane, and 3-hydrazidopropyl-trimethoxysilane.

<sup>22</sup> <sup>1</sup>  
73. The probe of claim 52, wherein said affinity molecule is an antibody, a nucleic acid, a protein, a polysaccharide or a small molecule.

<sup>23</sup> <sup>1</sup>  
74. The probe of claim 52, wherein said affinity molecule is avidin, streptavidin, biotin or anti-digoxigenin.

<sup>24</sup> 75. The probe of claim 52<sup>1</sup>, wherein said affinity molecule is streptavidin.

<sup>25</sup> 76. The probe of claim 52<sup>1</sup>, wherein said linking agent is 3-mercaptopropyl-trimethoxysilane and said affinity molecule is avidin, streptavidin, biotin or anti-digoxigenin.

<sup>26</sup> 77. The probe of claim 52<sup>1</sup>, wherein said linking agent is 3-mercaptopropyl-trimethoxysilane and said affinity molecule is streptavidin.

<sup>27</sup> 78. The probe of claim 52<sup>1</sup>, wherein said shell epitaxially surrounds said core.

### REMARKS

Claims 1-51 have been cancelled by this preliminary amendment to the divisional application being filed herewith. Claims 1-51 constitute the original claims filed in Serial No. 08/978,450 (now U.S. Patent 5,990,479). Parent application Serial No. 09/349,833 (the parent of this divisional application) was filed as a continuation of Serial No. 08/978,450. New claims 52-100 were added by amendment to parent application Serial No. 09/349,833. These new claims 52-100 were subject to restriction to Group I, claims 52-73; and Group II, claims 74-100. Group I, claims 52-73 were elected for prosecution in parent application Serial No. 09/349,833. The claims of the non-elected Group II (claims 74-100 in parent application Serial No. 09/349,833) are therefore presented for prosecution in this divisional application as new claims 52-78.

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